

U.S. Application No. 10/801,930, filed March 16, 2004

Attorney Docket No. 16136US02

Response AF dated June 29, 2009

In Response to Office Action Made Final mailed April 27, 2009

REMARKS

Claims 7-9, 11-13, 19-21, 23, 24, 33-35, 37-39, 41, 42 and 44 are pending and rejected.

Applicants respectfully request reconsideration of the Response filed February 17, 2009 (which is reproduced below) in view of the comments below which respond to the Office Action Made Final mailed April 27, 2009 (“Office Action Made Final”).

The Office Action Made Final alleges that Applicants argued against references individually. Applicants noted that:

Thus, while Foschini indicates that Foschini teaches that demultiplexing, weighting and combining before upconverting is the best method, Kohno disagrees. Instead, Kohno teaches that weighting and combining after upconverting is the best method.

Neither contemplates using weighting and combining **both** before **and** after upconverting.

Response dated February 17, 2009 at page 9.

In other words, Foschini teaches weighting and combining only once. Kohno teaches weighting and combining only once. So, even combined, the combined teaching of Foschini and Kohno is weighting and combining only once.

On the other hand, the claim language in claim 7 indicates that weighting and combining occurs at least twice. There is no teaching in Foschini and Kohno to weight and combine at least twice.

According to the Office Action Made Final, the technical underpinning asserted to combine the teachings of Foschini and Kohno is “so that error rate of decoded signals are reduced and reliability of the communications system is improved.” Office Action Made Final at page 11.

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What is the source of this technical underpinning to combine? Answer: Kohno. (Office Action Made Final at page 11). But the technical underpinning in Kohno, namely, “so that error rate of decoded signals are reduced and reliability of the communications system is improved” is solely applicable to an invention in Kohno that weights and combines only once.

Thus, there is no technical underpinning to combine Kohno and Foschini since the technical underpinning given is applicable solely to Kohno and only to an invention that weights and combines only once.

The Office Action Made Final provides no evidence that weighting and combining at least twice as set forth, for example, in claim 7 will provide the alleged effect, namely, “so that error rate of decoded signals are reduced and reliability of the communications system is improved”. Office Action Made Final at page 11.

The reason “so that error rate of decoded signals are reduced and reliability of the communications system is improved” (Office Action Made Final at page 11) is applicable solely to an invention that weights and combines only once and cannot be logically applied to a method that weights and combines at least twice as set forth, for example, in claim 7.

The Office Action Made Final provides no evidence that weighting and combining at least twice will reduce the “error rate of decoded signals” or that weighting and combining at least twice will improve the “reliability of the communications system”. Office Action Made Final at page 11.

Where does that the evidence come from that proves the assertion in the Office Action Made Final that weighting and combining at least twice will reduce the “error rate of decoded signals” or that weighting and improve the “reliability of the communications system”?

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The Office Action Made Final at page 6 states that “there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” (citation to KSR omitted).

However, as the above arguments assert, there is no rational underpinning to support the *prima facie* case of obviousness. The only underpinning offered in the Office Action Made Final at page 11, for example, are citations to Kohno which, as noted above, applies solely to an invention that weights and combines only once.

Since Applicants believe that Kohno and Foschini have not been properly combined, Applicants believe that the obviousness rejection based on Kohno and Foschini be withdrawn with respect to claims 7-9, 11-13, 19-21, 23, 24, 33-35, 37-39, 41, 42 and 44.

In view of the above arguments, Applicants respectfully request that the Response filed February 17, 2009 (reproduced below as a courtesy) be reconsidered.

Response filed February 17, 2009: Reproduced

Claims 7-9, 11-13, 19-21, 23, 24, 33-35, 37-39, 41, 42 and 44 stand rejected under 35 U.S.C. § 103(a) as being obvious over U.S. Patent No. 6,888,809 B1 (“Foschini”) in view of U.S. Patent No. 7,110,468 B2 (“Kohno”). Applicants traverse the rejection as set forth below.

Independent claim 7 recites, in part, (1) demultiplexing, weighting and combining *before* upconverting; and (2) dividing, weighting and combining *after* upconverting.

As alleged in the Office Action, Foschini solely teaches demultiplexing, weighting and combining *only* before upconverting.

Also alleged in the Office Action, Kohno solely teaches dividing, weighting and combining *only* after upconverting.

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However, neither Foschini nor Kohno, as alleged, contemplates performing weighting and combining both *before* and *after* upconverting.

Thus, while Foschini indicates that Foschini teaches that demultiplexing, weighting and combining before upconverting is the best method, Kohno disagrees. Instead, Kohno teaches that weighting and combining after upconverting is the best method.

Neither contemplates using weighting and combining *both* before *and* after upconverting.

The Office Action at page 4 alleges that “it would have been obvious to a person of ordinary skill in the art to modify the system of Foschini et al. based on the teachings of Kohno et al. so that error rates of decoded signals are reduced and reliability of the communications system is improved by maximum likelihood estimation (Kohno et al., column 6, lines 41-49)”.

However, it is respectfully submitted that, in the context of Foschini, it would not have been obvious to modify Foschini using the teachings of Kohno.

The statement in Kohno at col. 6, lines 46-49 that “the error rates of the decoded signals can be reduced and the reliability of the communication system improved by maximum likelihood estimation” relates to a beam control circuit 130 that allegedly performs weighting and combining *after* upconverting.

There is no documentary evidence provided in the Office Action to support the allegation that the above-reproduced statement in Kohno at col. 6, lines 46-49, which is applicable to a beam control circuit 130 that allegedly performs weighting and combining *after* upconverting, would be applicable to an antenna signal developer 103 in Foschini that allegedly performs weighting and combining *before* upconverting.

In addition, since Kohno, *by itself*, allegedly already provides that its configuration (i.e., allegedly weighting and combining *after* upconverting) provides that “the error rates of the decoded signals can be reduced and the reliability of the communication system improved by maximum likelihood estimation” (Kohno at col. 6, lines 46-49), then why would one of ordinary skill in the art use the configuration in Foschini?

If Kohno, *by itself*, already provides the advantages outlined in the

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Office Action at page 4, then why does one of ordinary skill in the art need Foschini?

In addition, Kohno at col. 6, lines 39-49 states that the function of the beam control circuit 130 in Kohno is to provide beam forming via correlation between beams B1 and B2.

On the other hand, Foschini teaches away from providing such correlation as indicated in Foschini at col. 1, lines 15-22 which states that “multiple-input, multiple-output (MIMO) systems can achieve dramatically improved capacity as compared to single antenna, i.e., single antenna to single antenna or multiple antenna to single antenna, systems. However, to achieve this improvement, it is preferable that there be a rich scattering environments, so that the various signals reaching the multiple receive antennas be largely uncorrelated.”

Thus, while Kohno allegedly advocates creating *correlation* between beams B1 and B2 using beam control circuit 130 to provide beam forming, Foschini, on the other hand, *teaches away* from Kohno by allegedly teaching that the improvements of MIMO are maximized when there is a rich scattering environment in which the signals are largely *uncorrelated*.

It is respectfully submitted that Foschini and Kohno were improperly combined since they teach away from each other. See, e.g., M.P.E.P. § 2145(X)(D)(2)(“[i]t is improper to combine references where the references teach away from their combination.”)

Ultimately, such a change in Foschini (i.e., Kohno’s modification to generate correlated beams to provide beam forming) would change Foschini’s principle of operation which is to maximize the improvements of MIMO by having signals that are largely uncorrelated.

It is respectfully submitted that such a proposed modification in Foschini is prohibited by M.P.E.P. § 2143.01(VI)(“[i]f the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the preferences are not sufficient to render the claims *prima facie* obvious.”)(italics in original).

Furthermore, to the extent that the proposed modification to

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Foschini (i.e., Kohno's modification to generate correlated beams to provide beam forming) would thwart Foschini's intended purpose which is to maximize the improvements of MIMO by having signals that are largely uncorrelated, it is prohibited by M.P.E.P. § 2143.01(V)(“[i]f proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification.”).

For at least the above reasons, it is respectfully submitted that the obviousness rejection cannot be maintained.

The same or similar arguments made with respect to independent claim 7 can also be made, if applicable, with respect to the other independent claims.

It is therefore respectfully requested that the rejection under 35 U.S.C. § 103(a) be withdrawn with respect to claims 7-9, 11-13, 19-21, 23, 24, 33-35, 37-39, 41, 42 and 44.

Applicants do not necessarily agree or disagree with the Examiner's characterization of the documents made of record, either alone or in combination, or the Examiner's characterization of recited claim elements. Furthermore, Applicants respectfully reserve the right to argue the characterization of the documents of record, either alone or in combination, to argue what is allegedly well known, allegedly obvious or allegedly disclosed, or the characterization of the recited claim elements should that need arise in the future.

Applicants respectfully reserve the right to pursue, without prejudice, subject matter (e.g., claimed subject matter) that has been withdrawn, amended and/or cancelled in a continuing and/or related application.

With respect to the present application, Applicants hereby rescind any disclaimer of claim scope made in the parent application or any predecessor or related application. The Examiner is advised that any previous disclaimer of claim scope, if any, and the alleged prior art that it was made to allegedly avoid, may need to be revisited. Nor should a disclaimer of claim scope, if any, in the present application be read back into any predecessor or related application.

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In view of at least the foregoing, it is respectfully submitted that the present application is in condition for allowance. Should anything remain in order to place the present application in condition for allowance, the Examiner is kindly invited to contact the undersigned at the below-listed telephone number.

The Commissioner is hereby authorized to charge any additional fees, to charge any fee deficiencies or to credit any overpayments to the deposit account of McAndrews, Held & Malloy, Account No. 13-0017.

Date: June 29, 2009

Respectfully submitted,

/Michael T. Cruz/

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